

ABSTRACT OF THE DISCLOSURE

Ion particles are discharged so as to be influenced by a magnetic field originated from the earth, and collided with high-altitude neutral air to generate high velocity neutral particles through charge exchange. The high velocity neutral particles are analyzed. The distance to the high-altitude neutral air from at least one of the discharging positions of the ion particles and the measured positions of the high velocity neutral particles is determined based upon the period of time between the discharging time of the ion particles and the time the high velocity neutral particles are analyzed. Moreover, the direction of the high-altitude neutral air is determined by measuring the direction of the high velocity neutral particles. In addition, the spatial position of the high-altitude neutral air is determined based upon the measured direction of the high velocity neutral particles.